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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Wang et al.

Attorney Docket No.: NOVL085/  
NVLS-2875

Application No.: 10/785,235

Examiner: UNASSIGNED

Filed: February 23, 2004

Group: 2812

Title: PLASMA DETEMPLATING AND  
SILANOL CAPPING OF POROUS  
DIELECTRIC FILMS

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on June 23, 2005 in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signed: \_\_\_\_\_

Tara Hayden

**INFORMATION DISCLOSURE STATEMENT  
37 CFR §§1.56 AND 1.97(b)**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 500388 (Order No. NOVL085).

Respectfully submitted,

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Form 1449 (Modified)  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	<table style="width: 100%;"> <tr> <td style="width: 50%;">           Atty Docket No. NOVL085/NVLS-2875 Applicant: Wang et al. Filing Date February 23, 2004         </td> <td style="width: 50%;">           Application No.: 10/785,235  Group 2812         </td> </tr> </table>	Atty Docket No. NOVL085/NVLS-2875 Applicant: Wang et al. Filing Date February 23, 2004	Application No.: 10/785,235  Group 2812
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**U.S. Patent Documents**

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub- class	Filing Date
	A1	5,789,027	08.04.98	Watkins et al.			
	A2	6,391,932 B1	05.21.02	Gore et al.			
	A3	5,700,844	12.23.97	Hedrick et al.			
	A4	2003/0157248 A1	08.21.03	Watkins et al.			
	A5	2002/0123240 A1	09.05.02	Gallagher et al.			
	A6	6,340,628	01.22.02	Van Cleemput, et al.			
	A7	6,383,955	05.07.02	Matsuki, et al.			
	A8	6,596,654	07.22.03	Bayman, et al.			
	A9	6,848,458	02.01.05	Shrinivasan et al.			
	A10	6,805,801	10.19.04	Humayun et al.			
	A11	6,391,932	05.21.02	Gore et al.			
	A12	6,329,062	12.11.01	Gaynor			
	A13	6,268,276	07.31.01	Chan et al.			
	A14	6,177,329	01.23.01	Pang			
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	A27	6,756,085	06.29.04	Waldfried et al.			
Examiner				Date Considered			

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	February 23, 2004	2812

**Foreign Patent or Published Foreign Patent Application**

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub- class	Translation	
							Yes	No
	B1	WO95/07543	03.16.95	WIPO			X	

**Other Documents**

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C1	Humayun et al., "Method for Forming Porous Films By Porogen Removal Combined With In SITU Surface Modification", Novellus Corporation, Application No. 10/404,693, filed 3/31/03, pages 1-32. Atty. Docket No. NOVLP064/NVLS-0007
	C2	Tipton et al., "Method Of Porogen Removal From Porous Low-K Films Using UV Radiation", Novellus Systems, Inc., Application No. 10/672,311, filed 9/26/03, pages 1-27. Atty. Docket No. NOVLP075/NVLS-000820
	C3	Jan, C.H., et al, <i>90NM Generation, 300mm Wafer Low k ILD/Cu Interconnect Technology</i> , 2003 IEEE Interconnect Technology Conference.
	C4	Wu et al., U.S. Application No. 10/789,103 (Atty Docket No.: NOVLP094), entitled: Methods For Producing Low-K CDO Films With Low Residual Stress
	C5	Wu et al., U.S. Application No. 10/820,525 (Atty Docket No.: NOVLP091), entitled: Methods For Producing Low-K CDO Films With Low Residual Stress
	C6	Wu et al., U.S. Application No. 10/800,409 (Atty Docket No.: NOVLP098), entitled: Methods For Producing Low-K CDO Films
	C7	U.S. Patent Application No. 10/016,017, File Date: December 12, 2001 (Atty Dkt: NOVLP030)
	C8	U.S. Patent Application No. 10/125,614, File Date: April 18, 2002 (Atty Dkt: NOVLP028)
	C9	U.S. Patent Application No. 10/202,987, File Date: July 23, 2002 (Atty Dkt: NOVLP028X1)
	C10	Tipton et al., "Method for Removal of Porogens From Porous Low-K Films Using Supercritical Fluids", Novellus Systems, Inc., Application No. 10/672,305, filed 9/26/03, pages 1-32. Atty. Docket No. NOVLP069/NVLS-000821
	C11	Cho et al., "Method and Apparatus for UV Exposure of Low Dielectric Constant Materials for Porogen Removal and Improved Mechanical Properties", Novellus Systems, Inc., Application No. 10/800,377, filed 3/11/04, pages 1-31. Atty. Docket No. NOVLP089/NVLS-2887
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**Other Documents**

	C12	Wu et al., "Method and Apparatus of UV Exposure of Low Dielectric Constant Materials for Porogen Removal and Improved Mechanical Properties", Novellus Systems, Inc., Application No. 10/807,680, filed 3/23/04, pages 1-34. Atty. Docket No. NOVLP097/NVLS-2906
	C13	Tipton et al., "Method Of Porogen Removal From Porous Low-K Films Using UV Radiation", U.S. Application No. 10/672,311, filed September 26, 2003, Office Action dated September 7, 2004 (Atty Dkt: NOVLP075/NVLS-000820)
	C14	Tipton et al., "Method Of Porogen Removal From Porous Low-K Films Using UV Radiation", U.S. Application No. 10/672,311, filed September 26, 2003, Office Action dated December 28, 2004 (Atty Dkt: NOVLP075/NVLS-000820)
	C15	Bandyopadhyay et al., "Method to Improve Mechanical Strength of Low-K Dielectric Film Using Modulated UV Exposure", U.S. Patent Application No. 10/825,888, filed April 16, 2004 (Atty Dkt: NOVLP088US/NVLS-2882)
	C16	R.D. Miller et al., "Phase-Separated Inorganic-Organic Hybrids for Microelectronic Applications," MRS Bulletin, October 1997, Pages 44-48
	C17	Jin et al., "Nanoporous Silica as an Ultralow- <i>k</i> Dielectric," MRS Bulletin, October 1997, Pages 39-42
	C18	Asoh et al., "Fabrication of Ideally Ordered Anodic Porous Alumina with 63 nm Hole Periodocity Using Sulfuric Acid," J. Vac. Sci. Technol. B 19(2), Mar/Apr 2001, Pages 569-572
	C19	Asoh et al., "Conditions for Fabrication of Ideally Ordered Anodic Porous Alumina Using Pretextured Al," Journal of the Electrochemica Society, 148 (4) B152-B156 (2001) Pages B152-B156
	C20	Holland et al., "Nonlithographic Technique for the Production of Large Area High Density Gridded Field Sources," J. Vac. Sci. Technol. B 17(2), Mar/Apr. 1999, Pages 580-582
	C21	Masuda et al. "Highly Ordered Nanochannel-Array Architecture in Anodic Alumina," App. Phys. Lett. 71(19), November 1997, Pages 2770-2772
	C22	Clube et al., "White Paper from Holotronic Technologies SA; downloaded from <a href="http://www.hdotronic.com/whitepaper/fine-patt.pdf">www.hdotronic.com/whitepaper/fine-patt.pdf</a> on March 12, 2002
	C23	Meli et al., "Self-Assembled Masks for the Transfer of Nanometer-Scale Patterns into Surfaces: Characterization by AFM and LFM", Nano Letters, Vol. 2, No. 2, 2002, 131-135
	C24	"Shipley Claims Porous Low K Dielectric Breakthrough," Press Release March 17, 2003.
	C25	Jeffrey M. Calvert and Michael K. Gallagher, Semiconductor International, 26 (12), 56 (2003).
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**Other Documents**

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	C26	Van Bavel et al., Future Fab International, 16, (2004).
	C27	Caluwaerts et al, "Post Patterning Meso Porosity Creation: A Potential Solution For Pore Sealing," IITC 2003.
	C28	Peter Singer, "New Materials and Designs to Improve Transistor Performance", April 1, 2004, Semiconductor International.
	C29	Ghani et al, "A 90nm High Volume Manufacturing Logic Technology Featuring Novel 45nm Gate Length Strained Silicon CMOS Transistors", IEEE, © 2003.
	C30	Bhadri N. Varadarajan, "Tensile Silicon Nitride – P1264 NESL", C & F Study, August 21, 2003.
	C31	Varadarajan, et al., "Strained Transistor Architecture and Method", Novellus Systems, Inc., Appln No. 10/923,259, filed August 20,2004, pages 1-24. [Atty Docket No. NOVLP108/NVLS-2933].
	C32	Niu et al., "Methods For Improving The Cracking Resistance Of Low-K Dielectric Materials", U.S. Application No. 10/860,340, filed June 2, 2004, (Atty Dkt: NOVLP099)
	C33	Niu et al., "Methods For Improving The Cracking Resistance Of Low-K Dielectric Materials", U.S. Application No. 10/860,340, Office Action dated March 2, 2005, (Atty Dkt: NOVLP099)
	C34	Niu et al., "Methods For Improving The Cracking Resistance Of Low-K Dielectric Materials", U.S. Application No. 10/860,340, Final Office Action dated June 13, 2005, (Atty Dkt: NOVLP099)
	C35	Varadarajan et al., "Tensile Dielectric Films Using UV Curing", U.S. Application No. 10/972,084, filed October 22, 2004 (Atty Dkt: NOVLP122)
	C36	Fox et al., "Method For Improving Mechanical Properties Of Low Dielectric Constant Materials", U.S. Application No. 10/849,568, filed May 18, 2004 (Atty Dkt: NOVLP083)
	C37	Fox et al., "Methods For Producing Low-Stress Carbon-Doped Oxide Films With Improved Integration Properties", U.S. Application No. 10/987,208, filed November 12, 2004 (Atty Dkt: NOVLP104)
	C38	Van Den Hoek et al., "VLSI Fabrication Processes For Introducing Pores Into Dielectric Materials," U.S. Application No. 11/050,621, filed January 31, 2005 (Atty Dkt: NOVLP100)
	C39	Draeger et al., "Creation Of Porosity In Low-K Films By Photo-Disassociation Of Imbedded Nanoparticles," U.S. Application No. 11/146,456, filed June 6, 2005 (Atty Dkt: NOVLP100X1)
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	C40	Wu et al., "Methods For Producing Low Stress Porous Low-K Dielectric Materials Using Precursors With Organic Functional Groups", U.S. Application No. 10/927,777, filed August 27, 2004 (Atty Dkt: NOVLP106)
	C41	Wu et al., "Methods For Improving Integration Performance Of Low Stress CDO Films", U.S. Application No. 10/941,502, filed September 14, 2004 (Atty Dkt: NOVLP107)
	C42	Cho et al., "Methods of Improving Porogen Removal and Film Mechanical Strength in Producing Ultra Low-K Carbon Doped Oxide Films Using Radical Photopolymerization", U.S. Application No. 10/982,654, filed November 5, 2004 (Atty Dkt: NOVLP115)
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